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Docket No.: HYS-31CIP

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Godbole, et al.

Serial No: Not Yet Assigned

Filed: Herewith

For: METHODS AND MATERIALS
RELATING TO ALPHA-2-
MACROGLOBULIN-LIKE
POLYPEPTIDES AND
POLYNUCLEOTIDES

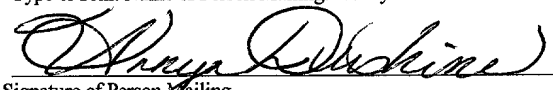
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Date of Deposit: January 8, 2001

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Type or Print Name of Person Mailing: Annya Dushine


Signature of Person Mailing

STATEMENT REGARDING SEQUENCE LISTING UNDER 37 CFR §1.821(f)

BOX PATENT APPLICATION

Assistant Commissioner for Patents

Washington, D.C. 20231

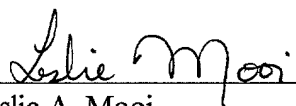
Dear Sir:

I hereby state that the content of the paper and computer readable copies of the Sequence Listing, submitted in accordance with 37 CFR §1.821(c) and (e), respectively, are the same.

Respectfully submitted,

Dated: January 8, 2001

By:


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HYS-31CIP
SEQUENCE LISTING

<110> Godbole, Shubhada D
Boyle, Bryan J
Mize, Nancy K
Deng, Cenhua
Goodrich, Ryle
Arterburn, Matthew C
Zhou, Ping
Tang, Y. Tom
Liu, Chenghua
Yeung, George
Drmanac, Radoje T

<120> METHODS AND MATERIALS RELATING TO ALPHA-2-MACROGLOBULIN-LIKE POLYPEPTIDES AND POLYNUCLEOTIDES

<130> HYS-31CIP

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gcttacattt tctccctggc tggggaaatg gacatcagaa acattctcct taaacagtta	3540
gatcaacagg ctatcatctc aggagaatcc atttactgga gccagaaacc tactccatca	3600
tcgaacgccg gcccttggtc tgagcctgcg gctgtagatg tggaactcac agcatatgca	3660
ttgttggccc agcttaccaa gccagcctg actcaaaagg agatagcgaa ggccactagc	3720
atagtggctt ggttggccaa gcaacacaat gcatatgggg gcttctcttc tactcaggat	3780
actgtagttg ctctccaagc tcttgccaaa tatgccacta ccgcctacat gccatctgag	3840
gagatcaacc tgggtgtaaa atccactgag aatttccagc gcacattcaa catacagtca	3900
gttaacagat tggatatttc gcaggatacc ctgccaatg tccctggaat gtacacgttg	3960
gaggcctcag gccagggctg tgtctatgtg cagacggtgt tgagatacaa tattctccct	4020
cccacaaata tgaagacctt tagtcttagt gtggaaatag gaaaagctag atgtgagcaa	4080
ccgacttcac ctcgatcctt gactctcact attcacacca gttatgtggg gagccgtagc	4140
tcttccaata tggctattgt ggaagtgaag atgctatctg ggttcagtcc catggagggc	4200
accaatcagt tacttctcca gcaacccctg gtgaagaagg ttgaatttgg aactgacaca	4260
cttaacatth acttggtatga gctcattaag aacactcaga cttacacctt caccatcagc	4320
caaagtgtgc tggtcaccaa cttgaaacca gcaaccatca aggtctatga ctactaccta	4380
ccaggttctt ttaaattatc tcagtacaca attgtgtggt ccatgaacaa tgacagcata	4440
gtggactctg tggcacggca cccagaacca ccccttttca agacagaagc atttattcct	4500
tcacttcttg ggagtgttaa caactga	4527

<210> 6
 <211> 31
 <212> PRT

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<213> Homo sapiens

<400> 6

Ile	Val	Ala	Trp	Leu	Ala	Lys	Gln	His	Asn	Ala	Tyr	Gly	Gly	Phe	Ser
1				5					10					15	

Ser	Thr	Gln	Asp	Thr	Val	Val	Ala	Leu	Gln	Ala	Leu	Ala	Lys	Tyr
			20					25					30	

<210> 7

<211> 30

<212> PRT

<213> Homo sapiens

<400> 7

Ala	Phe	Lys	Pro	Phe	Phe	Val	Asp	Leu	Thr	Leu	Pro	Tyr	Ser	Val	Val
1				5					10					15	

Arg	Gly	Glu	Ser	Phe	Arg	Leu	Thr	Ala	Thr	Ile	Phe	Asn	Tyr
			20					25					30

<210> 8

<211> 32

<212> PRT

<213> Homo sapiens

<400> 8

Leu	Val	Gln	Met	Pro	Ser	Gly	Cys	Gly	Glu	Gln	Asn	Met	Val	Leu	Phe
1				5					10					15	

Ala	Pro	Ile	Ile	Tyr	Val	Leu	Gln	Tyr	Leu	Glu	Lys	Ala	Gly	Leu	Leu
			20					25					30		

<210> 9

<211> 29

<212> PRT

<213> Homo sapiens

<400> 9

Thr	Phe	Val	Gln	Thr	Asp	Lys	Pro	Leu	Tyr	Thr	Pro	Gly	Gln	Gln	Val
1				5					10					15	

Tyr	Phe	Arg	Ile	Val	Thr	Met	Asp	Ser	Asn	Phe	Val	Pro
			20					25				

<210> 10

<211> 33

<212> PRT

<213> Homo sapiens

<400> 10

Phe	Thr	Ile	Ser	Gln	Ser	Val	Leu	Val	Thr	Asn	Leu	Lys	Pro	Ala	Thr
1				5					10					15	

Ile	Lys	Val	Tyr	Asp	Tyr	Tyr	Leu	Pro	Gly	Ser	Phe	Lys	Leu	Ser	Gln
			20					25					30		

Tyr

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<210> 11
 <211> 24
 <212> PRT
 <213> Homo sapiens

<400> 11

Ser Asn Met Ala Ile Val Glu Val Lys Met Leu Ser Gly Phe Ser Pro
 1 5 10 15

Met Glu Gly Thr Asn Gln Leu Leu
 20

<210> 12
 <211> 27
 <212> PRT
 <213> Homo sapiens

<400> 12

Phe Val Asp Leu Thr Leu Pro Tyr Ser Val Val Arg Gly Glu Ser Phe
 1 5 10 15

Arg Leu Thr Ala Thr Ile Phe Asn Tyr Leu Lys
 20 25

<210> 13
 <211> 21
 <212> PRT
 <213> Homo sapiens

<400> 13

Val Pro Asp Ala Ile Thr Glu Trp Lys Ala Met Ser Phe Cys Thr Ser
 1 5 10 15

Gln Ser Arg Gly Phe
 20

<210> 14
 <211> 13
 <212> PRT
 <213> Homo sapiens

<400> 14

Phe Ser Val Glu Glu Tyr Val Leu Pro Lys Phe Lys Val
 1 5 10

<210> 15
 <211> 27
 <212> PRT
 <213> Homo sapiens

<400> 15

Trp Met Ala Gly Asn Gln Leu Pro Ser Gly Cys Tyr Ala Asn Val Gly
 1 5 10 15

Asn Leu Leu His Thr Ala Met Lys Gly Gly Val
 20 25

HYS-31CIP

<210> 16
 <211> 10
 <212> PRT
 <213> Homo sapiens

<400> 16

Arg Gln Tyr Phe Pro Glu Thr Trp Leu Trp
 1 5 10

<210> 17
 <211> 12
 <212> PRT
 <213> Homo sapiens

<400> 17

Asn Thr Trp Leu Thr Ala Phe Val Thr Lys Cys Phe
 1 5 10

<210> 18
 <211> 17
 <212> PRT
 <213> Homo sapiens

<400> 18

Phe Leu Val Lys Ile Cys Cys Arg Tyr Thr Tyr Gly Lys Pro Met Leu
 1 5 10 15

Gly

<210> 19
 <211> 17
 <212> PRT
 <213> Homo sapiens

<400> 19

Met Trp Ala Gln Leu Leu Leu Gly Met Leu Ala Leu Ser Pro Ala Ile
 1 5 10 15

Ala

<210> 20
 <211> 179
 <212> PRT
 <213> Homo sapiens

<400> 20

Ser Ser Thr Ile Arg Val Ser Gly Val Cys Tyr Asn Ile Ser Phe Glu
 1 5 10 15

Glu Asn Lys Lys Val Leu Ile Gln Arg Gln Gly Asn Gly Thr Phe Val
 20 25 30

Gln Thr Asp Lys Pro Leu Tyr Thr Pro Gly Gln Gln Val Tyr Phe Arg
 35 40 45

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Ile Val Thr Met Asp Ser Asn Phe Val Pro Val Asn Asp Lys Tyr Ser
 50 55 60
 Met Val Glu Leu Gln Asp Pro Asn Ser Asn Arg Ile Ala Gln Trp Leu
 65 70 75 80
 Glu Val Val Pro Glu Gln Gly Ile Val Asp Leu Ser Phe Gln Leu Ala
 85 90 95
 Pro Glu Ala Met Leu Gly Thr Tyr Thr Val Ala Val Ala Glu Gly Lys
 100 105 110
 Thr Phe Gly Thr Phe Ser Val Glu Glu Tyr Val Leu Pro Lys Phe Lys
 115 120 125
 Val Glu Val Val Glu Pro Lys Glu Leu Ser Thr Val Gln Glu Ser Phe
 130 135 140
 Leu Val Lys Ile Cys Cys Arg Tyr Thr Tyr Gly Lys Pro Met Leu Gly
 145 150 155 160
 Ala Val Gln Val Ser Val Cys Gln Lys Ala Asn Thr Tyr Trp Tyr Arg
 165 170 175

Glu Val Glu

<210> 21
 <211> 300
 <212> PRT
 <213> Homo sapiens

<400> 21

Leu Gln Asn Leu Asp Gly Leu Val Gln Met Pro Ser Gly Cys Gly Glu
 1 5 10 15
 Gln Asn Met Val Leu Phe Ala Pro Ile Ile Tyr Val Leu Gln Tyr Leu
 20 25 30
 Glu Lys Ala Gly Leu Leu Thr Glu Glu Ile Arg Ser Arg Ala Val Gly
 35 40 45
 Phe Leu Glu Ile Gly Tyr Gln Lys Glu Leu Met Tyr Lys His Ser Asn
 50 55 60
 Gly Ser Tyr Ser Ala Phe Gly Glu Arg Asp Gly Asn Gly Asn Thr Trp
 65 70 75 80
 Leu Thr Ala Phe Val Thr Lys Cys Phe Gly Gln Ala Gln Lys Phe Ile
 85 90 95
 Phe Ile Asp Pro Lys Asn Ile Gln Asp Ala Leu Lys Trp Met Ala Gly
 100 105 110
 Asn Gln Leu Pro Ser Gly Cys Tyr Ala Asn Val Gly Asn Leu Leu His
 115 120 125
 Thr Ala Met Lys Gly Gly Val Asp Asp Glu Val Ser Leu Thr Ala Tyr
 130 135 140
 Val Thr Ala Ala Leu Leu Glu Met Gly Lys Asp Val Asp Asp Pro Met
 145 150 155 160

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Val Ser Gln Gly Leu Arg Cys Leu Lys Asn Ser Ala Thr Ser Thr Thr
165 170 175

Asn Leu Tyr Thr Gln Ala Leu Leu Ala Tyr Ile Phe Ser Leu Ala Gly
180 185 190

Glu Met Asp Ile Arg Asn Ile Leu Leu Lys Gln Leu Asp Gln Gln Ala
195 200 205

Ile Ile Ser Gly Glu Ser Ile Tyr Trp Ser Gln Lys Pro Thr Pro Ser
210 215 220

Ser Asn Ala Ser Pro Trp Ser Glu Pro Ala Ala Val Asp Val Glu Leu
225 230 235 240

Thr Ala Tyr Ala Leu Leu Ala Gln Leu Thr Lys Pro Ser Leu Thr Gln
245 250 255

Lys Glu Ile Ala Lys Ala Thr Ser Ile Val Ala Trp Leu Ala Lys Gln
260 265 270

His Asn Ala Tyr Gly Gly Phe Ser Ser Thr Gln Asp Thr Val Val Ala
275 280 285

Leu Gln Ala Leu Ala Lys Tyr Ala Thr Thr Ala Tyr
290 295 300

<210> 22
<211> 137
<212> PRT
<213> Homo sapiens

<400> 22

Asn Met Lys Thr Phe Ser Leu Ser Val Glu Ile Gly Lys Ala Arg Cys
1 5 10 15

Glu Gln Pro Thr Ser Pro Arg Ser Leu Thr Leu Thr Ile His Thr Ser
20 25 30

Tyr Val Gly Ser Arg Ser Ser Ser Asn Met Ala Ile Val Glu Val Lys
35 40 45

Met Leu Ser Gly Phe Ser Pro Met Glu Gly Thr Asn Gln Leu Leu Leu
50 55 60

Gln Gln Pro Leu Val Lys Lys Val Glu Phe Gly Thr Asp Thr Leu Asn
65 70 75 80

Ile Tyr Leu Asp Glu Leu Ile Lys Asn Thr Gln Thr Tyr Thr Phe Thr
85 90 95

Ile Ser Gln Ser Val Leu Val Thr Asn Leu Lys Pro Ala Thr Ile Lys
100 105 110

Val Tyr Asp Tyr Tyr Leu Pro Gly Ser Phe Lys Leu Ser Gln Tyr Thr
115 120 125

Ile Val Trp Ser Met Asn Asn Asp Ser
130 135

<210> 23

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<211> 1450
 <212> PRT
 <213> Homo sapiens

<400> 23

Leu	Leu	Leu	Val	Leu	Leu	Pro	Thr	Asp	Ala	Ser	Val	Ser	Gly	Lys	Pro	1	5	10	15
Gln	Tyr	Met	Val	Leu	Val	Pro	Ser	Leu	Leu	His	Thr	Glu	Thr	Thr	Glu	20	25	30	
Lys	Gly	Cys	Val	Leu	Leu	Ser	Tyr	Leu	Asn	Glu	Thr	Val	Thr	Val	Ser	35	40	45	
Ala	Ser	Leu	Glu	Ser	Val	Arg	Gly	Asn	Arg	Ser	Leu	Phe	Thr	Asp	Leu	50	55	60	
Glu	Ala	Glu	Asn	Asp	Val	Leu	His	Cys	Val	Ala	Phe	Ala	Val	Pro	Lys	65	70	75	80
Ser	Ser	Ser	Asn	Glu	Glu	Val	Met	Phe	Leu	Thr	Val	Gln	Val	Lys	Gly	85	90	95	
Pro	Thr	Gln	Glu	Phe	Lys	Lys	Arg	Thr	Thr	Val	Met	Val	Lys	Asn	Glu	100	105	110	
Asp	Ser	Leu	Val	Phe	Val	Gln	Thr	Asp	Lys	Ser	Ile	Tyr	Lys	Pro	Gly	115	120	125	
Gln	Thr	Val	Lys	Phe	Arg	Val	Val	Ser	Met	Asp	Glu	Asn	Phe	His	Pro	130	135	140	
Leu	Asn	Glu	Leu	Ile	Pro	Leu	Val	Tyr	Ile	Gln	Asp	Pro	Lys	Gly	Asn	145	150	155	160
Arg	Ile	Ala	Gln	Trp	Gln	Ser	Phe	Gln	Leu	Glu	Gly	Gly	Leu	Lys	Gln	165	170	175	
Phe	Ser	Phe	Pro	Leu	Ser	Ser	Glu	Pro	Phe	Gln	Gly	Ser	Tyr	Lys	Val	180	185	190	
Val	Val	Gln	Lys	Lys	Ser	Gly	Gly	Arg	Thr	Glu	His	Pro	Phe	Thr	Val	195	200	205	
Glu	Glu	Phe	Val	Leu	Pro	Lys	Phe	Glu	Val	Gln	Val	Thr	Val	Pro	Lys	210	215	220	
Ile	Ile	Thr	Ile	Leu	Glu	Glu	Met	Asn	Val	Ser	Val	Cys	Gly	Leu	225	230	235	240	
Tyr	Thr	Tyr	Gly	Lys	Pro	Val	Pro	Gly	His	Val	Thr	Val	Ser	Ile	Cys	245	250	255	
Arg	Lys	Tyr	Ser	Asp	Ala	Ser	Asp	Cys	His	Gly	Glu	Asp	Ser	Gln	Ala	260	265	270	
Phe	Cys	Glu	Lys	Phe	Ser	Gly	Gln	Leu	Asn	Ser	His	Gly	Cys	Phe	Tyr	275	280	285	
Gln	Gln	Val	Lys	Thr	Lys	Val	Phe	Gln	Leu	Lys	Arg	Lys	Glu	Tyr	Glu	290	295	300	

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Met	Lys	Leu	His	Thr	Glu	Ala	Gln	Ile	Gln	Glu	Glu	Gly	Thr	Val	Val	
305					310					315					320	
Glu	Leu	Thr	Gly	Arg	Gln	Ser	Ser	Glu	Ile	Thr	Arg	Thr	Ile	Thr	Lys	
				325					330					335		
Leu	Ser	Phe	Val	Lys	Val	Asp	Ser	His	Phe	Arg	Gln	Gly	Ile	Pro	Phe	
			340					345					350			
Phe	Gly	Gln	Val	Arg	Leu	Val	Asp	Gly	Lys	Gly	Val	Pro	Ile	Pro	Asn	
		355					360					365				
Lys	Val	Ile	Phe	Ile	Arg	Gly	Asn	Glu	Ala	Asn	Tyr	Tyr	Ser	Asn	Ala	
	370					375					380					
Thr	Thr	Asp	Glu	His	Gly	Leu	Val	Gln	Phe	Ser	Ile	Asn	Thr	Thr	Asn	
385					390					395					400	
Val	Met	Gly	Thr	Ser	Leu	Thr	Val	Arg	Val	Asn	Tyr	Lys	Asp	Arg	Ser	
				405					410					415		
Pro	Cys	Tyr	Gly	Tyr	Gln	Trp	Val	Ser	Glu	Glu	His	Glu	Glu	Ala	His	
			420					425					430			
His	Thr	Ala	Tyr	Leu	Val	Phe	Ser	Pro	Ser	Lys	Ser	Phe	Val	His	Leu	
		435					440					445				
Glu	Pro	Met	Ser	His	Glu	Leu	Pro	Cys	Gly	His	Thr	Gln	Thr	Val	Gln	
	450					455					460					
Ala	His	Tyr	Ile	Leu	Asn	Gly	Gly	Thr	Leu	Leu	Gly	Leu	Lys	Lys	Leu	
465					470					475					480	
Ser	Phe	Tyr	Tyr	Leu	Ile	Met	Ala	Lys	Gly	Gly	Ile	Val	Arg	Thr	Gly	
				485					490					495		
Thr	His	Gly	Leu	Leu	Val	Lys	Gln	Glu	Asp	Met	Lys	Gly	His	Phe	Ser	
			500					505					510			
Ile	Ser	Ile	Pro	Val	Lys	Ser	Asp	Ile	Ala	Pro	Val	Ala	Arg	Leu	Leu	
		515					520					525				
Ile	Tyr	Ala	Val	Leu	Pro	Thr	Gly	Asp	Val	Ile	Gly	Asp	Ser	Ala	Lys	
	530					535					540					
Tyr	Asp	Val	Glu	Asn	Cys	Leu	Ala	Asn	Lys	Val	Asp	Leu	Ser	Phe	Ser	
545					550					555					560	
Pro	Ser	Gln	Ser	Leu	Pro	Ala	Ser	His	Ala	His	Leu	Arg	Val	Thr	Ala	
				565					570					575		
Ala	Pro	Gln	Ser	Val	Cys	Ala	Leu	Arg	Ala	Val	Asp	Gln	Ser	Val	Leu	
			580					585					590			
Leu	Met	Lys	Pro	Asp	Ala	Glu	Leu	Ser	Ala	Ser	Ser	Val	Tyr	Asn	Leu	
		595					600					605				
Leu	Pro	Glu	Lys	Asp	Leu	Thr	Gly	Phe	Pro	Gly	Pro	Leu	Asn	Asp	Gln	
	610					615					620					
Asp	Asp	Glu	Asp	Cys	Ile	Asn	Arg	His	Asn	Val	Tyr	Ile	Asn	Gly	Ile	
625					630					635					640	

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Thr	Tyr	Thr	Pro	Val	Ser	Ser	Thr	Asn	Glu	Lys	Asp	Met	Tyr	Ser	Phe	645	650	655
Leu	Glu	Asp	Met	Gly	Leu	Lys	Ala	Phe	Thr	Asn	Ser	Lys	Ile	Arg	Lys	660	665	670
Pro	Lys	Met	Cys	Pro	Gln	Leu	Gln	Gln	Tyr	Glu	Met	His	Gly	Pro	Glu	675	680	685
Gly	Leu	Arg	Val	Gly	Phe	Tyr	Glu	Ser	Asp	Val	Met	Gly	Arg	Gly	His	690	695	700
Ala	Arg	Leu	Val	His	Val	Glu	Glu	Pro	His	Thr	Glu	Thr	Val	Arg	Lys	705	710	715
Tyr	Phe	Pro	Glu	Thr	Trp	Ile	Trp	Asp	Leu	Val	Val	Val	Asn	Ser	Ala	725	730	735
Gly	Val	Ala	Glu	Val	Gly	Val	Thr	Val	Pro	Asp	Thr	Ile	Thr	Glu	Trp	740	745	750
Lys	Ala	Gly	Ala	Phe	Cys	Leu	Ser	Glu	Asp	Ala	Gly	Leu	Gly	Ile	Ser	755	760	765
Ser	Thr	Ala	Ser	Leu	Arg	Ala	Phe	Gln	Pro	Phe	Phe	Val	Glu	Leu	Thr	770	775	780
Met	Pro	Tyr	Ser	Val	Ile	Arg	Gly	Glu	Ala	Phe	Thr	Leu	Lys	Ala	Thr	785	790	795
Val	Leu	Asn	Tyr	Leu	Pro	Lys	Cys	Ile	Arg	Val	Ser	Val	Gln	Leu	Glu	805	810	815
Ala	Ser	Pro	Ala	Phe	Leu	Ala	Val	Pro	Val	Glu	Lys	Glu	Gln	Ala	Pro	820	825	830
His	Cys	Ile	Cys	Ala	Asn	Gly	Arg	Gln	Thr	Val	Ser	Trp	Ala	Val	Thr	835	840	845
Pro	Lys	Ser	Leu	Gly	Asn	Val	Asn	Phe	Thr	Val	Ser	Ala	Glu	Ala	Leu	850	855	860
Glu	Ser	Gln	Glu	Leu	Cys	Gly	Thr	Glu	Val	Pro	Ser	Val	Pro	Glu	His	865	870	875
Gly	Arg	Lys	Asp	Thr	Val	Ile	Lys	Pro	Leu	Leu	Val	Glu	Pro	Glu	Gly	885	890	895
Leu	Glu	Lys	Glu	Thr	Thr	Phe	Asn	Ser	Leu	Leu	Cys	Pro	Ser	Gly	Gly	900	905	910
Glu	Val	Ser	Glu	Glu	Leu	Ser	Leu	Lys	Leu	Pro	Pro	Asn	Val	Val	Glu	915	920	925
Glu	Ser	Ala	Arg	Ala	Ser	Val	Ser	Val	Leu	Gly	Asp	Ile	Leu	Gly	Ser	930	935	940
Ala	Met	Gln	Asn	Thr	Gln	Asn	Leu	Leu	Gln	Met	Pro	Tyr	Gly	Cys	Gly	945	950	955
Glu	Gln	Asn	Met	Val	Leu	Phe	Ala	Pro	Asn	Ile	Tyr	Val	Leu	Asp	Tyr	965	970	975

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Leu Asn Glu Thr Gln Gln Leu Thr Pro Glu Val Lys Ser Lys Ala Ile
 980 985 990

Gly Tyr Leu Asn Thr Gly Tyr Gln Arg Gln Leu Asn Tyr Lys His Tyr
 995 1000 1005

Asp Gly Ser Tyr Ser Thr Phe Gly Glu Arg Tyr Gly Arg Asn Gln
 1010 1015 1020

Gly Asn Thr Trp Leu Thr Ala Phe Val Leu Lys Thr Phe Ala Gln
 1025 1030 1035

Ala Arg Ala Tyr Ile Phe Ile Asp Glu Ala His Ile Thr Gln Ala
 1040 1045 1050

Leu Ile Trp Leu Ser Gln Arg Gln Lys Asp Asn Gly Cys Phe Arg
 1055 1060 1065

Ser Ser Gly Ser Leu Leu Asn Asn Ala Ile Lys Gly Gly Val Glu
 1070 1075 1080

Asp Glu Val Thr Leu Ser Ala Tyr Ile Thr Ile Ala Leu Leu Glu
 1085 1090 1095

Ile Pro Leu Thr Val Thr His Pro Val Val Arg Asn Ala Leu Phe
 1100 1105 1110

Cys Leu Glu Ser Ala Trp Lys Thr Ala Gln Glu Gly Asp His Gly
 1115 1120 1125

Ser His Val Tyr Thr Lys Ala Leu Leu Ala Tyr Ala Phe Ala Leu
 1130 1135 1140

Ala Gly Asn Gln Asp Lys Arg Lys Glu Val Leu Lys Ser Leu Asn
 1145 1150 1155

Glu Glu Ala Val Lys Lys Asp Asn Ser Val His Trp Glu Arg Pro
 1160 1165 1170

Gln Lys Pro Lys Ala Pro Val Gly His Phe Tyr Glu Pro Gln Ala
 1175 1180 1185

Pro Ser Ala Glu Val Glu Met Thr Ser Tyr Val Leu Leu Ala Tyr
 1190 1195 1200

Leu Thr Ala Gln Pro Ala Pro Thr Ser Glu Asp Leu Thr Ser Ala
 1205 1210 1215

Thr Asn Ile Val Lys Trp Ile Thr Lys Gln Gln Asn Ala Gln Gly
 1220 1225 1230

Gly Phe Ser Ser Thr Gln Asp Thr Val Val Ala Leu His Ala Leu
 1235 1240 1245

Ser Lys Tyr Gly Ala Ala Thr Phe Thr Arg Thr Gly Lys Ala Ala
 1250 1255 1260

Gln Val Thr Ile Gln Ser Ser Gly Thr Phe Ser Ser Lys Phe Gln
 1265 1270 1275

Val Asp Asn Asn Asn Arg Leu Leu Leu Gln Gln Val Ser Leu Pro
 1280 1285 1290

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Glu Leu Pro Gly Glu Tyr Ser Met Lys Val Thr Gly Glu Gly Cys
 1295 1300 1305
 Val Tyr Leu Gln Thr Ser Leu Lys Tyr Asn Ile Leu Pro Glu Lys
 1310 1315 1320
 Glu Glu Phe Pro Phe Ala Leu Gly Val Gln Thr Leu Pro Gln Thr
 1325 1330 1335
 Cys Asp Glu Pro Lys Ala His Thr Ser Phe Gln Ile Ser Leu Ser
 1340 1345 1350
 Val Ser Tyr Thr Gly Ser Arg Ser Ala Ser Asn Met Ala Ile Val
 1355 1360 1365
 Asp Val Lys Met Val Ser Gly Phe Ile Pro Leu Lys Pro Thr Val
 1370 1375 1380
 Lys Met Leu Glu Arg Ser Asn His Val Ser Arg Thr Glu Val Ser
 1385 1390 1395
 Ser Asn His Val Leu Ile Tyr Leu Asp Lys Val Ser Asn Gln Thr
 1400 1405 1410
 Leu Ser Leu Phe Phe Thr Val Leu Gln Asp Val Pro Val Arg Asp
 1415 1420 1425
 Leu Lys Pro Ala Ile Val Lys Val Tyr Asp Tyr Tyr Glu Thr Asp
 1430 1435 1440
 Glu Phe Ala Ile Ala Glu Tyr
 1445 1450

<210> 24
 <211> 1451
 <212> PRT
 <213> Homo sapiens

<400> 24

Leu Leu Leu Leu Val Leu Val Pro Thr Asp Ala Ser Val Ser Gly Lys
 1 5 10 15
 Pro Gln Tyr Met Val Leu Val Pro Ser Leu Leu His Thr Glu Thr Thr
 20 25 30
 Glu Lys Gly Cys Val Leu Leu Ser Tyr Leu Asn Glu Thr Val Thr Val
 35 40 45
 Ser Ala Ser Leu Glu Ser Val Arg Gly Asn Arg Ser Leu Phe Thr Asp
 50 55 60
 Leu Glu Ala Glu Asn Asp Val Leu His Cys Val Ala Phe Ala Val Pro
 65 70 75 80
 Lys Ser Ser Ser Asn Glu Glu Val Met Phe Leu Thr Val Gln Val Lys
 85 90 95
 Gly Pro Thr Gln Glu Phe Lys Lys Arg Thr Thr Val Met Val Lys Asn
 100 105 110
 Glu Asp Ser Leu Val Phe Val Gln Thr Asp Lys Ser Ile Tyr Lys Pro
 115 120 125

HYS-31CIP

Gly	Gln	Thr	Val	Lys	Phe	Arg	Val	Val	Ser	Met	Asp	Glu	Asn	Phe	His
130						135					140				
Pro	Leu	Asn	Glu	Leu	Ile	Pro	Leu	Val	Tyr	Ile	Gln	Asp	Pro	Lys	Gly
145					150					155					160
Asn	Arg	Ile	Ala	Gln	Trp	Gln	Ser	Phe	Gln	Leu	Glu	Gly	Gly	Leu	Lys
				165					170					175	
Gln	Phe	Ser	Phe	Pro	Leu	Ser	Ser	Glu	Pro	Phe	Gln	Gly	Ser	Tyr	Lys
			180					185					190		
Val	Val	Val	Gln	Lys	Lys	Ser	Gly	Gly	Arg	Thr	Glu	His	Pro	Phe	Thr
			195				200					205			
Val	Glu	Glu	Phe	Val	Leu	Pro	Lys	Phe	Glu	Val	Gln	Val	Thr	Val	Pro
	210					215					220				
Lys	Ile	Ile	Thr	Ile	Leu	Glu	Glu	Glu	Met	Asn	Val	Ser	Val	Cys	Gly
225					230					235					240
Leu	Tyr	Thr	Tyr	Gly	Lys	Pro	Val	Pro	Gly	His	Val	Thr	Val	Ser	Ile
				245					250					255	
Cys	Arg	Lys	Tyr	Ser	Asp	Ala	Ser	Asp	Cys	His	Gly	Glu	Asp	Ser	Gln
			260					265					270		
Ala	Phe	Cys	Glu	Lys	Phe	Ser	Gly	Gln	Leu	Asn	Ser	His	Gly	Cys	Phe
		275					280					285			
Tyr	Gln	Gln	Val	Lys	Thr	Lys	Val	Phe	Gln	Leu	Lys	Arg	Lys	Glu	Tyr
	290					295					300				
Glu	Met	Lys	Leu	His	Thr	Glu	Ala	Gln	Ile	Gln	Glu	Glu	Gly	Thr	Val
305					310					315					320
Val	Glu	Leu	Thr	Gly	Arg	Gln	Ser	Ser	Glu	Ile	Thr	Arg	Thr	Ile	Thr
				325					330					335	
Lys	Leu	Ser	Phe	Val	Lys	Val	Asp	Ser	His	Phe	Arg	Gln	Gly	Ile	Pro
			340					345					350		
Phe	Phe	Gly	Gln	Val	Arg	Leu	Val	Asp	Gly	Lys	Gly	Val	Pro	Ile	Pro
		355					360					365			
Asn	Lys	Val	Ile	Phe	Ile	Arg	Gly	Asn	Glu	Ala	Asn	Tyr	Tyr	Ser	Asn
	370					375					380				
Ala	Thr	Thr	Asp	Glu	His	Gly	Leu	Val	Gln	Phe	Ser	Ile	Asn	Thr	Thr
385					390					395					400
Asn	Val	Met	Gly	Thr	Ser	Leu	Thr	Val	Arg	Val	Asn	Tyr	Lys	Asp	Arg
				405					410					415	
Ser	Pro	Cys	Tyr	Gly	Tyr	Gln	Trp	Val	Ser	Glu	Glu	His	Glu	Glu	Ala
			420					425					430		
His	His	Thr	Ala	Tyr	Leu	Val	Phe	Ser	Pro	Ser	Lys	Ser	Phe	Val	His
		435					440					445			
Leu	Glu	Pro	Met	Ser	His	Glu	Leu	Pro	Cys	Gly	His	Thr	Gln	Thr	Val
	450					455					460				

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Gln	Ala	His	Tyr	Ile	Leu	Asn	Gly	Gly	Thr	Leu	Leu	Gly	Leu	Lys	Lys	465	470	475	480
Leu	Ser	Phe	Tyr	Tyr	Leu	Ile	Met	Ala	Lys	Gly	Gly	Ile	Val	Arg	Thr	485	490	495	
Gly	Thr	His	Gly	Leu	Leu	Val	Lys	Gln	Glu	Asp	Met	Lys	Gly	His	Phe	500	505	510	
Ser	Ile	Ser	Ile	Pro	Val	Lys	Ser	Asp	Ile	Ala	Pro	Val	Ala	Arg	Leu	515	520	525	
Leu	Ile	Tyr	Ala	Val	Leu	Pro	Thr	Gly	Asp	Val	Ile	Gly	Asp	Ser	Ala	530	535	540	
Lys	Tyr	Asp	Val	Glu	Asn	Cys	Leu	Ala	Asn	Lys	Val	Asp	Leu	Ser	Phe	545	550	555	560
Ser	Pro	Ser	Gln	Ser	Leu	Pro	Ala	Ser	His	Ala	His	Leu	Arg	Val	Thr	565	570	575	
Ala	Ala	Pro	Gln	Ser	Val	Cys	Ala	Leu	Arg	Ala	Val	Asp	Gln	Ser	Val	580	585	590	
Leu	Leu	Met	Lys	Pro	Asp	Ala	Glu	Leu	Ser	Ala	Ser	Ser	Val	Tyr	Asn	595	600	605	
Leu	Leu	Pro	Glu	Lys	Asp	Leu	Thr	Gly	Phe	Pro	Gly	Pro	Leu	Asn	Asp	610	615	620	
Gln	Asp	Asp	Glu	Asp	Cys	Ile	Asn	Arg	His	Asn	Val	Tyr	Ile	Asn	Gly	625	630	635	640
Ile	Thr	Tyr	Thr	Pro	Val	Ser	Ser	Thr	Asn	Glu	Lys	Asp	Met	Tyr	Ser	645	650	655	
Phe	Leu	Glu	Asp	Met	Gly	Leu	Lys	Ala	Phe	Thr	Asn	Ser	Lys	Ile	Arg	660	665	670	
Lys	Pro	Lys	Met	Cys	Pro	Gln	Leu	Gln	Gln	Tyr	Glu	Met	His	Gly	Pro	675	680	685	
Glu	Gly	Leu	Arg	Val	Gly	Phe	Tyr	Glu	Ser	Asp	Val	Met	Gly	Arg	Gly	690	695	700	
His	Ala	Arg	Leu	Val	His	Val	Glu	Glu	Pro	His	Thr	Glu	Thr	Val	Arg	705	710	715	720
Lys	Tyr	Phe	Ala	Glu	Thr	Trp	Ile	Trp	Asp	Leu	Val	Val	Val	Asn	Ser	725	730	735	
Ala	Gly	Val	Ala	Glu	Val	Gly	Val	Thr	Val	Pro	Asp	Thr	Ile	Thr	Glu	740	745	750	
Trp	Lys	Ala	Gly	Ala	Phe	Cys	Leu	Ser	Glu	Asp	Ala	Gly	Leu	Gly	Ile	755	760	765	
Ser	Ser	Thr	Ala	Ser	Leu	Arg	Ala	Phe	Gln	Pro	Phe	Phe	Val	Glu	Leu	770	775	780	
Thr	Met	Pro	Tyr	Ser	Val	Ile	Arg	Gly	Glu	Ala	Phe	Thr	Leu	Lys	Ala	785	790	795	800

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Thr Val Leu Asn Tyr Leu Pro Lys Cys Ile Arg Val Ser Val Gln Leu
 805 810 815
 Glu Ala Ser Pro Ala Phe Leu Ala Val Pro Val Glu Lys Glu Gln Ala
 820 825 830
 Pro His Cys Ile Cys Ala Asn Gly Arg Gln Thr Val Ser Trp Ala Val
 835 840 845
 Thr Pro Lys Ser Leu Gly Asn Val Asn Phe Thr Val Ser Ala Glu Ala
 850 855 860
 Leu Glu Ser Gln Glu Leu Cys Gly Thr Glu Val Pro Ser Val Pro Glu
 865 870 875 880
 His Gly Arg Lys Asp Thr Val Ile Lys Pro Leu Leu Val Glu Pro Glu
 885 890 895
 Gly Leu Glu Lys Glu Thr Thr Phe Asn Ser Leu Leu Cys Pro Ser Gly
 900 905 910
 Gly Glu Val Ser Glu Glu Leu Ser Leu Lys Leu Pro Pro Asn Val Val
 915 920 925
 Glu Glu Ser Ala Arg Ala Ser Val Ser Val Leu Gly Asp Ile Leu Gly
 930 935 940
 Ser Ala Met Gln Asn Thr Gln Asn Leu Leu Gln Met Pro Tyr Gly Cys
 945 950 955 960
 Gly Glu Gln Asn Met Val Leu Phe Ala Pro Asn Ile Tyr Val Leu Asp
 965 970 975
 Tyr Leu Asn Glu Thr Gln Gln Leu Thr Pro Glu Ile Lys Ser Lys Ala
 980 985 990
 Ile Gly Tyr Leu Asn Thr Gly Tyr Gln Arg Gln Leu Asn Tyr Lys His
 995 1000 1005
 Tyr Asp Gly Ser Tyr Ser Thr Phe Gly Glu Arg Tyr Gly Arg Asn
 1010 1015 1020
 Gln Gly Asn Thr Trp Leu Thr Ala Phe Val Leu Lys Thr Phe Ala
 1025 1030 1035
 Gln Ala Arg Ala Tyr Ile Phe Ile Asp Glu Ala His Ile Thr Gln
 1040 1045 1050
 Ala Leu Ile Trp Leu Ser Gln Arg Gln Lys Asp Asn Gly Cys Phe
 1055 1060 1065
 Arg Ser Ser Gly Ser Leu Leu Asn Asn Ala Ile Lys Gly Gly Val
 1070 1075 1080
 Glu Asp Glu Val Thr Leu Ser Ala Tyr Ile Thr Ile Ala Leu Leu
 1085 1090 1095
 Glu Ile Leu Leu Thr Val Thr His Pro Val Val Arg Asn Ala Leu
 1100 1105 1110
 Phe Cys Leu Glu Ser Ala Trp Lys Thr Ala Gln Glu Gly Asp His
 1115 1120 1125

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Gly	Ser	His	Val	Tyr	Thr	Lys	Ala	Leu	Leu	Ala	Tyr	Ala	Phe	Ala	
1130						1135					1140				
Leu	Ala	Gly	Asn	Gln	Asp	Lys	Arg	Lys	Glu	Val	Leu	Lys	Ser	Leu	
1145						1150					1155				
Asn	Glu	Glu	Ala	Val	Lys	Lys	Asp	Asn	Ser	Val	His	Trp	Glu	Arg	
1160						1165					1170				
Pro	Gln	Lys	Pro	Lys	Ala	Pro	Val	Gly	His	Phe	Tyr	Glu	Pro	Gln	
1175						1180					1185				
Ala	Pro	Ser	Ala	Glu	Val	Glu	Met	Thr	Ser	Tyr	Val	Leu	Leu	Ala	
1190						1195					1200				
Tyr	Leu	Thr	Ala	Gln	Pro	Ala	Pro	Thr	Ser	Glu	Asp	Leu	Thr	Ser	
1205						1210					1215				
Ala	Thr	Asn	Ile	Val	Lys	Trp	Ile	Thr	Lys	Gln	Gln	Asn	Ala	Gln	
1220						1225					1230				
Gly	Gly	Phe	Ser	Ser	Thr	Gln	His	Thr	Val	Val	Ala	Leu	His	Ala	
1235						1240					1245				
Leu	Ser	Lys	Tyr	Gly	Ala	Ala	Thr	Phe	Thr	Arg	Thr	Gly	Lys	Ala	
1250						1255					1260				
Ala	Gln	Val	Thr	Ile	Gln	Ser	Ser	Gly	Thr	Phe	Ser	Ser	Lys	Phe	
1265						1270					1275				
Gln	Val	Asp	Asn	Asn	Asn	Arg	Leu	Leu	Leu	Gln	Gln	Val	Ser	Leu	
1280						1285					1290				
Pro	Glu	Leu	Pro	Gly	Glu	Tyr	Ser	Met	Lys	Val	Thr	Gly	Glu	Gly	
1295						1300					1305				
Cys	Val	Tyr	Leu	Gln	Thr	Ser	Leu	Lys	Tyr	Asn	Ile	Leu	Pro	Glu	
1310						1315					1320				
Lys	Glu	Glu	Phe	Pro	Phe	Ala	Leu	Gly	Val	Gln	Thr	Leu	Pro	Gln	
1325						1330					1335				
Thr	Cys	Asp	Glu	Pro	Lys	Ala	His	Thr	Ser	Phe	Gln	Ile	Ser	Leu	
1340						1345					1350				
Ser	Val	Ser	Tyr	Thr	Gly	Ser	Arg	Ser	Ala	Ser	Asn	Met	Ala	Ile	
1355						1360					1365				
Val	Asp	Val	Lys	Met	Val	Ser	Gly	Phe	Ile	Pro	Leu	Lys	Pro	Thr	
1370						1375					1380				
Val	Lys	Met	Leu	Glu	Arg	Ser	Asn	His	Val	Ser	Arg	Thr	Glu	Val	
1385						1390					1395				
Ser	Ser	Asn	His	Val	Leu	Ile	Tyr	Leu	Asp	Lys	Val	Ser	Asn	Gln	
1400						1405					1410				
Thr	Leu	Ser	Leu	Phe	Phe	Thr	Val	Leu	Gln	Asp	Val	Pro	Val	Arg	
1415						1420					1425				
Asp	Leu	Lys	Pro	Ala	Ile	Val	Lys	Val	Tyr	Asp	Tyr	Tyr	Glu	Thr	
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Asp Glu Phe Ala Ile Ala Glu Tyr
1445 1450

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<212> PRT
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Pro Ser Val Gln Lys Val Cys Leu Asp Leu Ser Pro Gly Tyr Ser Asp
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Val Lys Phe Thr Val Thr Leu Glu Thr Lys Asp Lys Thr Gln Lys Leu
35 40 45

Leu Glu Tyr Ser Gly Leu Lys Lys Arg His Leu His Cys Ile Ser Phe
50 55 60

Leu Val Pro Pro Pro Ala Gly Gly Thr Glu Glu Val Ala Thr Ile Arg
65 70 75 80

Val Ser Gly Val Gly Asn Asn Ile Ser Phe Glu Glu Lys Lys Lys Val
85 90 95

Leu Ile Gln Arg Gln Gly Asn Gly Thr Phe Val Gln Thr Asp Lys Pro
100 105 110

Leu Tyr Thr Pro Gly Gln Gln Val Tyr Phe Arg Ile Val Thr Met Asp
115 120 125

Ser Asn Phe Val Pro Val Asn Asp Lys Tyr Ser Met Val Glu Leu Gln
130 135 140

Asp Pro Asn Ser Asn Arg Ile Ala Gln Trp Leu Glu Val Val Pro Glu
145 150 155 160

Gln Gly Ile Val Asp Leu Ser Phe Gln Leu Ala Pro Glu Ala Met Leu
165 170 175

Gly Thr Tyr Thr Val Ala Val Ala Glu Gly Lys Thr Phe Gly Thr Phe
180 185 190

Ser Val Glu Glu Tyr Val Leu Pro Lys Phe Lys Val Glu Val Val Glu
195 200 205

Pro Lys Glu Leu Ser Thr Val Gln Glu Ser Phe Leu Val Lys Ile Cys
210 215 220

Cys Arg Tyr Thr Tyr Gly Lys Pro Met Leu Gly Ala Val Gln Val Ser
225 230 235 240

Val Cys Gln Lys Ala Asn Thr Tyr Trp Tyr Arg Glu Val Glu Arg Glu
245 250 255

Gln Leu Pro Asp Lys Cys Arg Asn Leu Ser Gly Gln Thr Asp Lys Thr
260 265 270

Gly Cys Phe Ser Ala Pro Val Asp Met Ala Thr Phe Asp Leu Ile Gly
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275					280					285					
Tyr	Ala	Tyr	Ser	His	Gln	Ile	Asn	Ile	Val	Ala	Thr	Val	Val	Glu	Glu
290						295					300				
Gly	Thr	Gly	Val	Glu	Ala	Asn	Ala	Thr	Gln	Asn	Ile	Tyr	Ile	Ser	Pro
305					310					315					320
Gln	Met	Gly	Ser	Met	Thr	Phe	Glu	Asp	Thr	Ser	Asn	Phe	Tyr	His	Pro
				325					330					335	
Asn	Phe	Pro	Phe	Ser	Gly	Lys	Ile	Arg	Val	Arg	Gly	His	Asp	Asp	Ser
			340					345					350		
Phe	Leu	Lys	Asn	His	Leu	Val	Phe	Leu	Val	Ile	Tyr	Gly	Thr	Asn	Gly
		355					360					365			
Thr	Phe	Asn	Gln	Thr	Leu	Val	Thr	Asp	Asn	Asn	Gly	Leu	Ala	Pro	Phe
	370					375					380				
Thr	Leu	Glu	Thr	Ser	Gly	Trp	Asn	Gly	Thr	Asp	Val	Ser	Leu	Glu	Gly
385					390					395					400
Lys	Phe	Gln	Met	Glu	Asp	Leu	Val	Tyr	Asn	Pro	Glu	Gln	Val	Pro	Arg
				405					410					415	
Tyr	Tyr	Gln	Asn	Ala	Tyr	Leu	His	Leu	Arg	Pro	Phe	Tyr	Ser	Thr	Thr
			420					425					430		
Arg	Ser	Phe	Leu	Gly	Ile	His	Arg	Leu	Asn	Gly	Pro	Leu	Lys	Cys	Gly
		435					440					445			
Gln	Pro	Gln	Glu	Val	Leu	Val	Asp	Tyr	Tyr	Ile	Asp	Pro	Ala	Asp	Ala
	450					455					460				
Ser	Pro	Asp	Gln	Glu	Ile	Ser	Phe	Ser	Tyr	Tyr	Leu	Ile	Gly	Lys	Gly
465					470				475						480
Ser	Leu	Val	Met	Glu	Gly	Gln	Lys	His	Leu	Asn	Ser	Lys	Lys	Lys	Gly
				485					490					495	
Leu	Lys	Ala	Ser	Phe	Ser	Leu	Ser	Leu	Thr	Phe	Thr	Ser	Arg	Leu	Ala
			500					505					510		
Pro	Asp	Pro	Ser	Leu	Val	Ile	Tyr	Ala	Ile	Phe	Pro	Ser	Gly	Gly	Val
		515					520					525			
Val	Ala	Asp	Lys	Ile	Gln	Phe	Ser	Val	Gly	Met	Cys	Phe	Asp	Asn	Gln
	530					535					540				
Val	Ser	Leu	Gly	Phe	Ser	Pro	Ser	Gln	Gln	Leu	Pro	Gly	Ala	Glu	Val
545					550					555					560
Glu	Leu	Gln	Leu	Gln	Ala	Ala	Pro	Gly	Ser	Leu	Cys	Ala	Leu	Arg	Ala
				565				570						575	
Val	Asp	Glu	Ser	Val	Leu	Leu	Leu	Arg	Pro	Asp	Arg	Glu	Leu	Ser	Asn
			580					585					590		
Arg	Ser	Val	Tyr	Gly	Met	Phe	Pro	Phe	Trp	Tyr	Gly	His	Tyr	Pro	Tyr
		595					600					605			
Gln	Val	Ala	Glu	Tyr	Asp	Gln	Cys	Pro	Val	Ser	Gly	Pro	Trp	Asp	Phe

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610

615

620

Pro 625	Gln	Pro	Leu	Ile	Asp 630	Pro	Met	Pro	Gln	Gly 635	His	Ser	Ser	Gln	Arg 640
Ser	Ile	Ile	Trp	Arg 645	Pro	Ser	Phe	Ser	Glu 650	Gly	Thr	Asp	Leu	Phe	Ser 655
Phe	Phe	Arg	Asp 660	Val	Gly	Leu	Lys 665	Ile	Leu	Ser	Asn	Ala	Lys 670	Ile	Lys
Lys	Pro	Val 675	Asp	Cys	Ser	His	Arg 680	Ser	Pro	Glu	Tyr	Ser 685	Thr	Ala	Met
Gly 690	Gly	Gly	Gly	His	Pro	Glu 695	Ala	Phe	Glu	Ser	Ser 700	Thr	Pro	Leu	His
Gln 705	Ala	Glu	Asp	Ser	Gln 710	Val	Arg	Gln	Tyr	Phe 715	Pro	Glu	Thr	Trp	Leu 720
Trp	Asp	Leu	Phe	Pro 725	Ile	Gly	Asn	Ser	Gly 730	Lys	Glu	Ala	Val	His 735	Val
Thr	Val	Pro	Asp 740	Ala	Ile	Thr	Glu	Trp 745	Lys	Ala	Met	Ser	Phe	Cys	Thr 750
Ser	Gln	Ser 755	Arg	Gly	Phe	Gly	Leu 760	Ser	Pro	Thr	Val	Gly 765	Leu	Thr	Ala
Phe 770	Lys	Pro	Phe	Phe	Val	Asp 775	Leu	Thr	Leu	Pro	Tyr 780	Ser	Val	Val	Arg
Gly 785	Glu	Ser	Phe	Arg	Leu 790	Thr	Ala	Thr	Ile	Phe 795	Asn	Tyr	Leu	Lys	Asp 800
Cys	Ile	Arg	Val	Gln 805	Thr	Asp	Leu	Ala	Lys 810	Ser	His	Glu	Tyr	Gln 815	Leu
Glu	Ser	Trp	Ala 820	Asp	Ser	Gln	Thr	Ser 825	Ser	Cys	Leu	Cys	Ala 830	Asp	Asp
Ala	Lys	Thr 835	His	His	Trp	Asn	Ile 840	Thr	Ala	Val	Lys	Leu 845	Gly	His	Ile
Asn 850	Phe	Thr	Ile	Ser	Thr	Lys 855	Ile	Leu	Asp	Ser	Asn 860	Glu	Pro	Cys	Gly
Gly 865	Gln	Lys	Gly	Phe	Val 870	Pro	Gln	Lys	Gly	Arg 875	Ser	Asp	Thr	Leu	Ile 880
Lys	Pro	Val	Leu	Val 885	Lys	Pro	Glu	Gly	Val 890	Leu	Val	Glu	Lys	Thr 895	His
Ser	Ser	Leu	Leu 900	Cys	Pro	Lys	Gly	Lys 905	Val	Ala	Ser	Glu	Ser 910	Val	Ser
Leu	Glu	Leu	Pro	Val	Asp	Ile	Val 920	Pro	Asp	Ser	Thr	Lys 925	Ala	Tyr	Val
Thr 930	Val	Leu	Gly	Lys	Gln	Leu 935	Glu	Ile	Leu	Asp	Ser 940	Glu	Arg	Lys	Arg
Arg	Met	Glu	Ala	Ala	Lys	Val	Trp	Arg	Asp	Ile	Met	Gly	Thr	Ala	Leu

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Gln Asn Leu Asp	Gly Leu Val Gln Met	Pro Ser Gly Cys Gly Glu Gln				
	965	970				975
Asn Met Val Leu Phe Ala Pro Ile Ile Tyr Val Leu Gln Tyr Leu Glu						
	980	985				990
Lys Ala Gly Leu Leu Thr Glu Glu Ile Arg Ser Arg Ala Val Gly Phe						
	995	1000				1005
Leu Glu Ile Gly Tyr Gln Lys Glu Leu Met Tyr Lys His Ser Asn						
	1010	1015				1020
Gly Ser Tyr Ser Ala Phe Gly Glu Arg Asp Gly Asn Gly Asn Thr						
	1025	1030				1035
Trp Leu Thr Ala Phe Val Thr Lys Cys Phe Gly Gln Ala Gln Lys						
	1040	1045				1050
Phe Ile Phe Ile Asp Pro Lys Asn Ile Gln Asp Ala Leu Lys Trp						
	1055	1060				1065
Met Ala Gly Asn Gln Leu Pro Ser Gly Cys Tyr Ala Asn Val Gly						
	1070	1075				1080
Asn Leu Leu His Thr Ala Met Lys Gly Gly Val Asp Asp Glu Val						
	1085	1090				1095
Ser Leu Thr Ala Tyr Val Thr Ala Ala Leu Leu Glu Met Gly Lys						
	1100	1105				1110
Asp Val Asp Asp Pro Met Val Ser Gln Gly Leu Arg Cys Leu Lys						
	1115	1120				1125
Asn Ser Ala Thr Ser Thr Thr Asn Leu Tyr Thr Gln Ala Leu Leu						
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Ala Tyr Ile Phe Ser Leu Ala Gly Glu Met Asp Ile Arg Asn Ile						
	1145	1150				1155
Leu Leu Lys Gln Leu Asp Gln Gln Ala Ile Ile Ser Gly Glu Ser						
	1160	1165				1170
Ile Tyr Trp Ser Gln Lys Pro Thr Pro Ser Ser Asn Ala Ser Pro						
	1175	1180				1185
Trp Ser Glu Pro Ala Ala Val Asp Val Glu Leu Thr Ala Tyr Ala						
	1190	1195				1200
Leu Leu Ala Gln Leu Thr Lys Pro Ser Leu Thr Gln Lys Glu Ile						
	1205	1210				1215
Ala Lys Ala Thr Ser Ile Val Ala Trp Leu Ala Lys Gln His Asn						
	1220	1225				1230
Ala Tyr Gly Gly Phe Ser Ser Thr Gln Asp Thr Val Val Ala Leu						
	1235	1240				1245
Gln Ala Leu Ala Lys Tyr Ala Thr Thr Ala Tyr Met Pro Ser Glu						
	1250	1255				1260
Glu Ile Asn Leu Val Val Lys Ser Thr Glu Asn Phe Gln Arg Thr						

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1280	1285	1290
Leu Pro Asn Val Pro Gly	Met Tyr Thr Leu Glu Ala	Ser Gly Gln
1295	1300	1305
Gly Cys Val Tyr Val Gln	Thr Val Leu Arg Tyr Asn	Ile Leu Pro
1310	1315	1320
Pro Thr Asn Met Lys Thr	Phe Ser Leu Ser Val Glu	Ile Gly Lys
1325	1330	1335
Ala Arg Cys Glu Gln Pro	Thr Ser Pro Arg Ser Leu	Thr Leu Thr
1340	1345	1350
Ile His Thr Ser Tyr Val	Gly Ser Arg Ser Ser Ser	Asn Met Ala
1355	1360	1365
Ile Val Glu Val Lys Met	Leu Ser Gly Phe Ser Pro	Met Glu Gly
1370	1375	1380
Thr Asn Gln Leu Leu Leu	Gln Gln Pro Leu Val Lys	Lys Val Glu
1385	1390	1395
Phe Gly Thr Asp Thr Leu	Asn Ile Tyr Leu Asp Glu	Leu Ile Lys
1400	1405	1410
Asn Thr Gln Thr Tyr Thr	Phe Thr Ile Ser Gln Ser	Val Leu Val
1415	1420	1425
Thr Asn Leu Lys Pro Ala	Thr Ile Lys Val Tyr Asp	Tyr Tyr Leu
1430	1435	1440
Pro Gly Ser Phe Lys Leu	Ser Gln Tyr Thr Ile Val	Trp Ser Met
1445	1450	1455
Asn Asn Asp Ser Ile Val	Asp Ser Val Ala Arg His	Pro Glu Pro
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			580					585					590		
Gln	Leu	Gln	Ala	Ala	Pro	Gly	Ser	Leu	Cys	Ala	Leu	Arg	Ala	Val	Asp
		595					600					605			
Glu	Ser	Val	Leu	Leu	Leu	Arg	Pro	Asp	Arg	Glu	Leu	Ser	Asn	Arg	Ser
	610					615					620				
Val	Tyr	Gly	Met	Phe	Pro	Phe	Trp	Tyr	Gly	His	Tyr	Pro	Tyr	Gln	Val
625					630					635					640
Ala	Glu	Tyr	Asp	Gln	Cys	Pro	Val	Ser	Gly	Pro	Trp	Asp	Phe	Pro	Gln
				645					650					655	
Pro	Leu	Ile	Asp	Pro	Met	Pro	Gln	Gly	His	Ser	Ser	Gln	Arg	Ser	Ile
			660					665					670		
Ile	Trp	Arg	Pro	Ser	Phe	Ser	Glu	Gly	Thr	Asp	Leu	Phe	Ser	Phe	Phe
		675					680					685			
Arg	Asp	Val	Gly	Leu	Lys	Ile	Leu	Ser	Asn	Ala	Lys	Ile	Lys	Lys	Pro
	690					695					700				
Val	Asp	Cys	Ser	His	Arg	Ser	Pro	Glu	Tyr	Ser	Thr	Ala	Met	Gly	Ala
705					710					715					720

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Gly Gly Gly His Pro Glu Ala Phe Glu Ser Ser Thr Pro Leu His Gln
725 730 735

Ala Glu Asp Ser Gln Val Arg Gln Tyr Phe Pro Glu Thr Trp Leu Trp
740 745 750

Asp Leu Phe Pro Ile Gly Asn Ser Gly Lys Glu Ala Val His Val Thr
755 760 765

Val Pro Asp Ala Ile Thr Glu Trp Lys Ala Met Ser Phe Cys Thr Ser
770 775 780

Gln Ser Arg Gly Phe Gly Leu Ser Pro Thr Val Gly Leu Thr Ala Phe
785 790 795 800

Lys Pro Phe Phe Val Asp Leu Thr Leu Pro Tyr Ser Val Val Arg Gly
805 810 815

Glu Ser Phe Arg Leu Thr Ala Thr Ile Phe Asn Tyr Leu Lys Asp Cys
820 825 830

Ile Arg Val Arg Ala Gly Asp Thr Gly Ile Arg Cys Gln Pro Trp Asn
835 840 845

His Thr Ser Pro Ile Thr Leu Ser Leu Asn Trp Lys His Pro Asn Phe
850 855 860

Pro Trp Glu Arg Glu Glu Met Ser Ala Ser Gln Pro Pro Gly Phe Pro
865 870 875 880

Arg Pro Leu Cys Thr Thr Ser Phe Val Cys Thr Leu Cys Leu Leu Asn
885 890 895

Ile Leu Arg Arg Phe Arg Leu Thr Trp Leu Asn Arg Met Ser Thr Ser
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<213> homo sapiens

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ccagcccggc taaatttccc ctccgttcag aaggtttgtt tggacctgag ccctgggtac 180

agtgatgtta aattcacggt tactctggag accaaggaca agaccagaa gttgctagaa 240

tactctggac tgaagaagag gcacttacat tgtatctcct ttcttgtacc acctcctgct 300

HYS-31CIP

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 gaggagaaga aaaaggttct aattcagagg caggggaacg gcacctttgt acagactgac 420
 aaacctctct acaccccagg gcagcaagtg tatttccgca ttgtcaccat ggatagcaac 480
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 gcaccagagg caatgctggg cacctacact gtggcagtgg ctgagggcaa gacctttggt 660
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 <213> homo sapiens

<400> 31

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Arg Gly Glu Ser Phe Arg Leu Thr Ala Thr Ile Phe Asn Tyr
 20 25 30

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<400> 32

Thr Phe Val Gln Thr Asp Lys Pro Leu Tyr Thr Pro Gly Gln Gln Val
 1 5 10 15

Tyr Phe Arg Ile Val Thr Met Asp Ser Asn Phe Val Pro
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<210> 33
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Phe Val Asp Leu Thr Leu Pro Tyr Ser Val Val Arg Gly Glu Ser Phe
 1 5 10 15

Arg Leu Thr Ala Thr Ile Phe Asn Tyr Leu Lys
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HYS-31CIP

<213> homo sapiens

<400> 34

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Gln	Ser	Arg	Gly	Phe
			20	

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<212> PRT

<213> homo sapiens

<400> 35

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<211> 10

<212> PRT

<213> homo sapiens

<400> 36

Arg	Gln	Tyr	Phe	Pro	Glu	Thr	Trp	Leu	Trp
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<211> 17

<212> PRT

<213> homo sapiens

<400> 37

Phe	Leu	Val	Lys	Ile	Cys	Cys	Arg	Tyr	Thr	Tyr	Gly	Lys	Pro	Met	Leu
1				5					10					15	

Gly

<210> 38

<211> 30

<212> PRT

<213> homo sapiens

<400> 38

Met	Ile	Val	Tyr	Lys	Phe	Val	Pro	Val	Ser	Pro	Thr	Lys	Met	Trp	Ala
1				5					10					15	

Gln	Leu	Leu	Leu	Gly	Met	Leu	Ala	Leu	Ser	Pro	Ala	Ile	Ala
				20				25					30

<210> 39

<211> 882

<212> PRT

<213> homo sapiens

<400> 39

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Pro	Ser	Val	Gln	Lys	Val	Cys	Leu	Asp	Leu	Ser	Pro	Gly	Tyr	Ser	Asp	20	25	30	
Val	Lys	Phe	Thr	Val	Thr	Leu	Glu	Thr	Lys	Asp	Lys	Thr	Gln	Lys	Leu	35	40	45	
Leu	Glu	Tyr	Ser	Gly	Leu	Lys	Lys	Arg	His	Leu	His	Cys	Ile	Ser	Phe	50	55	60	
Leu	Val	Pro	Pro	Pro	Ala	Gly	Gly	Thr	Glu	Glu	Val	Ala	Thr	Ile	Arg	65	70	75	80
Val	Ser	Gly	Val	Gly	Asn	Asn	Ile	Ser	Phe	Glu	Glu	Lys	Lys	Lys	Val	85	90	95	
Leu	Ile	Gln	Arg	Gln	Gly	Asn	Gly	Thr	Phe	Val	Gln	Thr	Asp	Lys	Pro	100	105	110	
Leu	Tyr	Thr	Pro	Gly	Gln	Gln	Val	Tyr	Phe	Arg	Ile	Val	Thr	Met	Asp	115	120	125	
Ser	Asn	Phe	Val	Pro	Val	Asn	Asp	Lys	Tyr	Ser	Met	Val	Glu	Leu	Gln	130	135	140	
Asp	Pro	Asn	Ser	Asn	Arg	Ile	Ala	Gln	Trp	Leu	Glu	Val	Val	Pro	Glu	145	150	155	160
Gln	Gly	Ile	Val	Asp	Leu	Ser	Phe	Gln	Leu	Ala	Pro	Glu	Ala	Met	Leu	165	170	175	
Gly	Thr	Tyr	Thr	Val	Ala	Val	Ala	Glu	Gly	Lys	Thr	Phe	Gly	Thr	Phe	180	185	190	
Ser	Val	Glu	Glu	Tyr	Val	Leu	Pro	Lys	Phe	Lys	Val	Glu	Val	Val	Glu	195	200	205	
Pro	Lys	Glu	Leu	Ser	Thr	Val	Gln	Glu	Ser	Phe	Leu	Val	Lys	Ile	Cys	210	215	220	
Cys	Arg	Tyr	Thr	Tyr	Gly	Lys	Pro	Met	Leu	Gly	Ala	Val	Gln	Val	Ser	225	230	235	240
Val	Cys	Gln	Lys	Ala	Asn	Thr	Tyr	Trp	Tyr	Arg	Glu	Val	Glu	Arg	Glu	245	250	255	
Gln	Leu	Pro	Asp	Lys	Cys	Arg	Asn	Leu	Ser	Gly	Gln	Thr	Asp	Lys	Thr	260	265	270	
Gly	Cys	Phe	Ser	Ala	Pro	Val	Asp	Met	Ala	Thr	Phe	Asp	Leu	Ile	Gly	275	280	285	
Tyr	Ala	Tyr	Ser	His	Gln	Ile	Asn	Ile	Val	Ala	Thr	Val	Val	Glu	Glu	290	295	300	
Gly	Thr	Gly	Val	Glu	Ala	Asn	Ala	Thr	Gln	Asn	Ile	Tyr	Ile	Ser	Pro	305	310	315	320
Gln	Met	Gly	Ser	Met	Thr	Phe	Glu	Asp	Thr	Ser	Asn	Phe	Tyr	His	Pro	325	330	335	

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Asn Phe Pro Phe Ser Gly Lys Ile Arg Val Arg Gly His Asp Asp Ser
 340 345 350
 Phe Leu Lys Asn His Leu Val Phe Leu Val Ile Tyr Gly Thr Asn Gly
 355 360 365
 Thr Phe Asn Gln Thr Leu Val Thr Asp Asn Asn Gly Leu Ala Pro Phe
 370 375 380
 Thr Leu Glu Thr Ser Gly Trp Asn Gly Thr Asp Val Ser Leu Glu Gly
 385 390 395 400
 Lys Phe Gln Met Glu Asp Leu Val Tyr Asn Pro Glu Gln Val Pro Arg
 405 410 415
 Tyr Tyr Gln Asn Ala Tyr Leu His Leu Arg Pro Phe Tyr Ser Thr Thr
 420 425 430
 Arg Ser Phe Leu Gly Ile His Arg Leu Asn Gly Pro Leu Lys Cys Gly
 435 440 445
 Gln Pro Gln Glu Val Leu Val Asp Tyr Tyr Ile Asp Pro Ala Asp Ala
 450 455 460
 Ser Pro Asp Gln Glu Ile Ser Phe Ser Tyr Tyr Leu Ile Gly Lys Gly
 465 470 475 480
 Ser Leu Val Met Glu Gly Gln Lys His Leu Asn Ser Lys Lys Lys Gly
 485 490 495
 Leu Lys Ala Ser Phe Ser Leu Ser Leu Thr Phe Thr Ser Arg Leu Ala
 500 505 510
 Pro Asp Pro Ser Leu Val Ile Tyr Ala Ile Phe Pro Ser Gly Gly Val
 515 520 525
 Val Ala Asp Lys Ile Gln Phe Ser Val Glu Met Cys Phe Asp Asn Gln
 530 535 540
 Val Ser Leu Gly Phe Ser Pro Ser Gln Gln Leu Pro Gly Ala Glu Val
 545 550 555 560
 Glu Leu Gln Leu Gln Ala Ala Pro Gly Ser Leu Cys Ala Leu Arg Ala
 565 570 575
 Val Asp Glu Ser Val Leu Leu Leu Arg Pro Asp Arg Glu Leu Ser Asn
 580 585 590
 Arg Ser Val Tyr Gly Met Phe Pro Phe Trp Tyr Gly His Tyr Pro Tyr
 595 600 605
 Gln Val Ala Glu Tyr Asp Gln Cys Pro Val Ser Gly Pro Trp Asp Phe
 610 615 620
 Pro Gln Pro Leu Ile Asp Pro Met Pro Gln Gly His Ser Ser Gln Arg
 625 630 635 640
 Ser Ile Ile Trp Arg Pro Ser Phe Ser Glu Gly Thr Asp Leu Phe Ser
 645 650 655
 Phe Phe Arg Asp Val Gly Leu Lys Ile Leu Ser Asn Ala Lys Ile Lys
 660 665 670

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Lys Pro Val Asp Cys Ser His Arg Ser Pro Glu Tyr Ser Thr Ala Met
675 680 685

Gly Ala Gly Gly Gly His Pro Glu Ala Phe Glu Ser Ser Thr Pro Leu
690 695 700

His Gln Ala Glu Asp Ser Gln Val Arg Gln Tyr Phe Pro Glu Thr Trp
705 710 715 720

Leu Trp Asp Leu Phe Pro Ile Gly Asn Ser Gly Lys Glu Ala Val His
725 730 735

Val Thr Val Pro Asp Ala Ile Thr Glu Trp Lys Ala Met Ser Phe Cys
740 745 750

Thr Ser Gln Ser Arg Gly Phe Gly Leu Ser Pro Thr Val Gly Leu Thr
755 760 765

Ala Phe Lys Pro Phe Phe Val Asp Leu Thr Leu Pro Tyr Ser Val Val
770 775 780

Arg Gly Glu Ser Phe Arg Leu Thr Ala Thr Ile Phe Asn Tyr Leu Lys
785 790 795 800

Asp Cys Ile Arg Val Arg Ala Gly Asp Thr Gly Ile Arg Cys Gln Pro
805 810 815

Trp Asn His Thr Ser Pro Ile Thr Leu Ser Leu Asn Trp Lys His Pro
820 825 830

Asn Phe Pro Trp Glu Arg Glu Glu Met Ser Ala Ser Gln Pro Pro Gly
835 840 845

Phe Pro Arg Pro Leu Cys Thr Thr Ser Phe Val Cys Thr Leu Cys Leu
850 855 860

Leu Asn Ile Leu Arg Arg Phe Arg Leu Thr Trp Leu Asn Arg Met Ser
865 870 875 880

Thr Ser

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<213> homo sapiens

<400> 40

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Lys His Ser Asn Gly Ser Tyr Ser Ala Phe Gly Glu Arg Asp Gly Asn
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Gly Asn Thr Trp
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<210> 41
<211> 826
<212> PRT
<213> gallus gallus

HYS-31CIP

<400> 41

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 Ile Leu Ala Ile Leu Leu Leu His Ala Ala Ala Gly Lys Glu Pro Glu
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 Pro Gln Tyr Val Leu Met Val Pro Ala Val Leu Gln Ser Asp Ser Pro
 35 40 45
 Ser Gln Val Cys Leu Gln Phe Phe Asn Leu Asn Gln Thr Ile Ser Val
 50 55 60
 Arg Val Val Leu Glu Tyr Asp Thr Ile Asn Thr Thr Ile Phe Glu Lys
 65 70 75 80
 Asn Thr Thr Thr Ser Asn Gly Leu Gln Cys Leu Asn Phe Met Ile Pro
 85 90 95
 Pro Val Thr Ser Val Ser Leu Ala Phe Ile Ser Phe Thr Ala Lys Gly
 100 105 110
 Thr Thr Phe Asp Leu Lys Glu Arg Arg Ser Val Met Ile Trp Asn Met
 115 120 125
 Glu Ser Phe Val Phe Val Gln Thr Asp Lys Pro Ile Tyr Lys Pro Gly
 130 135 140
 Gln Ser Val Met Phe Arg Val Val Ala Leu Asp Phe Asn Phe Lys Pro
 145 150 155 160
 Val Gln Glu Met Tyr Pro Leu Ile Ala Val Gln Asp Pro Gln Asn Asn
 165 170 175
 Arg Ile Phe Gln Trp Gln Asn Val Thr Ser Glu Ile Asn Ile Val Gln
 180 185 190
 Ile Glu Phe Pro Leu Thr Glu Glu Pro Ile Leu Gly Asn Tyr Lys Ile
 195 200 205
 Ile Val Thr Lys Lys Ser Gly Glu Arg Thr Ser His Ser Phe Leu Val
 210 215 220
 Glu Glu Tyr Val Leu Pro Lys Phe Asp Val Thr Val Thr Ala Pro Gly
 225 230 235 240
 Ser Leu Thr Val Met Asp Ser Glu Leu Thr Val Lys Ile Cys Ala Val
 245 250 255
 Tyr Thr Tyr Gly Gln Pro Val Glu Gly Lys Val Gln Leu Ser Val Cys
 260 265 270
 Arg Asp Phe Asp Ser Tyr Gly Arg Cys Lys Lys Ser Pro Val Cys Gln
 275 280 285
 Ser Phe Thr Lys Asp Leu Asp Thr Asp Gly Cys Leu Ser His Ile Leu
 290 295 300
 Ser Ser Lys Val Phe Glu Leu Asn Arg Ile Gly Tyr Lys Arg Asn Leu
 305 310 315 320
 Asp Val Lys Ala Ile Val Thr Glu Lys Glu Gln Val Cys Asn Leu Thr
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325

330

335

Ala	Thr	Gln	Ser	Ile	Ser	Ile	Thr	Gln	Val	Met	Ser	Ser	Leu	Gln	Phe
			340					345					350		
Glu	Asn	Val	Asp	His	His	Tyr	Arg	Arg	Gly	Ile	Pro	Tyr	Phe	Gly	Gln
		355					360					365			
Ile	Lys	Leu	Val	Asp	Lys	Asp	Asn	Ser	Pro	Ile	Ser	Asn	Lys	Val	Ile
	370					375					380				
Gln	Leu	Phe	Val	Asn	Asn	Lys	Asn	Thr	His	Asn	Phe	Thr	Thr	Asp	Ile
385					390					395					400
Asn	Gly	Ile	Ala	Pro	Phe	Ser	Ile	Asp	Thr	Ser	Lys	Ile	Phe	Asp	Pro
				405				410						415	
Glu	Leu	Ser	Leu	Lys	Ala	Leu	Tyr	Lys	Thr	Ser	Asp	Gln	Cys	His	Ser
			420					425					430		
Glu	Gly	Trp	Ile	Glu	Pro	Ser	Tyr	Pro	Asp	Ala	Ser	Leu	Ser	Val	Gln
		435					440					445			
Arg	Leu	Tyr	Ser	Trp	Thr	Ser	Ser	Phe	Val	Arg	Ile	Glu	Pro	Leu	Trp
	450					455					460				
Lys	Asp	Met	Ser	Cys	Gly	Gln	Lys	Arg	Met	Ile	Thr	Val	Tyr	Tyr	Ile
465					470				475						480
Leu	Asn	Thr	Glu	Gly	Tyr	Glu	His	Ile	Asn	Ile	Val	Asn	Phe	Tyr	Tyr
				485				490						495	
Val	Gly	Met	Ala	Lys	Gly	Lys	Ile	Val	Leu	Thr	Gly	Glu	Ile	Lys	Val
			500					505					510		
Asn	Ile	Gln	Ala	Asp	Gln	Asn	Gly	Thr	Phe	Met	Ile	Pro	Leu	Val	Val
		515					520					525			
Asn	Glu	Lys	Met	Ala	Pro	Ala	Leu	Arg	Leu	Leu	Val	Tyr	Met	Leu	His
	530					535					540				
Pro	Ala	Lys	Glu	Leu	Val	Ala	Asp	Ser	Val	Arg	Phe	Ser	Ile	Glu	Lys
545					550					555					560
Cys	Phe	Lys	Asn	Lys	Val	Gln	Leu	Gln	Phe	Ser	Glu	Lys	Gln	Met	Leu
				565					570					575	
Thr	Thr	Ser	Asn	Val	Ser	Leu	Val	Ile	Glu	Ala	Ala	Ala	Asn	Ser	Phe
			580					585					590		
Cys	Ala	Val	Arg	Ala	Val	Asp	Lys	Ser	Met	Leu	Leu	Leu	Lys	Ser	Glu
		595					600					605			
Thr	Glu	Leu	Ser	Ala	Glu	Thr	Ile	Tyr	Asn	Leu	His	Pro	Ile	Gln	Asp
	610					615					620				
Leu	Gln	Gly	Tyr	Ile	Phe	Asn	Gly	Leu	Asn	Leu	Glu	Asp	Asp	Pro	Gln
625					630					635					640
Asp	Pro	Cys	Val	Ser	Ser	Asp	Asp	Ile	Phe	His	Lys	Gly	Leu	Tyr	Tyr
				645					650					655	
Arg	Pro	Leu	Thr	Ser	Gly	Leu	Gly	Pro	Asp	Val	Tyr	Gln	Phe	Leu	Arg

HYS-31CIP

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Asp	Met	Gly	Met	Lys	Phe	Phe	Thr	Asn	Ser	Lys	Ile	Arg	Gln	Pro	Thr
		675					680					685			
Val	Cys	Thr	Arg	Glu	Thr	Val	Arg	Pro	Pro	Ser	Tyr	Phe	Leu	Asn	Ala
	690					695					700				
Gly	Phe	Thr	Ala	Ser	Thr	His	His	Val	Lys	Leu	Ser	Ala	Glu	Val	Ala
705					710					715					720
Arg	Glu	Glu	Arg	Gly	Lys	Arg	His	Ile	Leu	Glu	Thr	Ile	Arg	Glu	Phe
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Phe	Pro	Glu	Thr	Trp	Ile	Trp	Asp	Ile	Ile	Leu	Ile	Asn	Ser	Thr	Gly
			740					745					750		
Lys	Ala	Ser	Val	Ser	Tyr	Thr	Ile	Pro	Asp	Thr	Ile	Thr	Glu	Trp	Lys
		755					760					765			
Ala	Ser	Ala	Phe	Cys	Val	Glu	Glu	Leu	Ala	Gly	Phe	Gly	Met	Ser	Val
		770				775					780				
Pro	Ala	Thr	Leu	Thr	Ala	Phe	Gln	Pro	Phe	Phe	Val	Asp	Leu	Thr	Leu
785					790					795					800
Pro	Tyr	Ser	Ile	Ile	His	Gly	Glu	Asp	Phe	Leu	Val	Arg	Ala	Asn	Val
				805					810					815	
Phe	Asn	Tyr	Leu	Asn	His	Cys	Ile	Lys	Ile						
			820					825							